



The Effects of a Copy, Cover, Compare Practice Procedure in Spelling with Four Second-Grade Students: Generalization to Weekly In Classroom Tests

Jayne Merritt, Department of Special Education Gonzaga University and Spokane Public Schools, Spokane, WA, USA

T. F. McLaughlin, Department of Special Education Gonzaga University, Spokane, WA, USA

Kimberly P. Weber, Department of Special Education Gonzaga University, Spokane, WA, USA

K. Mark Derby, Department of Special Education Gonzaga University Spokane, WA, USA

Anjali Barretto Department of Special Education Gonzaga University Spokane, WA, USA

Email: mclaughlin@gonzaga.edu

Abstract: The purpose of this study was to evaluate the effectiveness of a copy, cover, and compare strategy to practice weekly core spelling words with four 2nd grade students. Each of the participants had difficulty in spelling, and three students were judged to be at-risk for school failure, while one student labeled was enrolled in a special education resource room. A multiple baseline design across participants was employed. In this study, the copy, cover, compare spelling practice strategy resulted in improved scores for daily and end of the week spelling tests. The results also suggested that the copy, cover, compare strategy can be a functional and effective procedure to teach spelling words to students-at risk as well as to a student with learning disabilities. The benefits of employing copy, cover, and compare were also discussed.

Keywords: Cover; Copy; Compare; at Risk Students; Learning Disabilities; Elementary School; Classroom Research.

INTRODUCTION

The relationship between spelling and school success has spurred a large number of studies on spelling interventions and instruction [1-6]. Fulk and Stormont-Spurgin [1] examined 38 spelling studies. They found that “nearly all of the ‘systematic’ instructional techniques could be used to improve student spelling. The interventions examined included a variety of instructional techniques such as computer-assisted instruction, student study techniques, and sensory/modality training. Despite the varying instructional modes reviewed, 35 of the 38 studies resulted in improved spelling performance, improvement in student attitudes toward spelling practice, and/or higher rates of on-task behavior [1]. A more recent meta-analysis of academic interventions for students with learning disabilities [7] found that strategy instruction assists children with learning disabilities in the area of spelling and written language. Such a finding was also reported by Wong, Harris, Graham, and Butler [8]. More recently, Graham et al., [4] have indicated that certain practices such as additional practice session, strategy instruction, explicit instruction and guides practice were effective in teaching children with disabilities to spell.

The copy, cover, and compare instructional method has generated a great deal of classroom action research. It has been successfully employed across a wide variety of curricular areas such as reading [9] spelling [10-16], and math [17-19]. As a self-managed academic intervention, cover, copy, and compare method is student-paced and participant evaluated. McLaughlin and Skinner [21] felt this method could be utilized for skills involving recognition, memorization, or automatic responding. Children with and without disabilities can have increased accuracy, fluency, and/or comprehension in the areas of reading, spelling, mathematics, and geography when utilizing the cover, copy, and compare approach. Benefits of the approach include brief instructional intervals, daily testing, immediate reinforcement/feedback, and high probability of correct responding [21-22]. Comparisons with copy, cover, and compare to other methods such as public posting or computer aided instruction [10, 13, 22] have reported that copy, cover, and compare typically equals or exceeds these other interventions.

The inability to independently record information through writing reduces academic achievement and a student’s skills at self-expression [2-4]. An incapacity to manipulate one’s environment through writing also places limits on age-appropriate participation and future success. As

students embark upon adolescence and early adulthood, a necessity for accuracy and fluency in writing becomes paramount [2, 3, 20, 23]. Severe language difficulties in adolescence can pose a socially significant problem which warrants a focused intervention.

Much of the previous research dealing with copy, cover, and compare has employed students with disabilities. The first purpose of the present research was to evaluate the effectiveness of copy, cover, and compare technique with three students enrolled in general education. These three participants in this research were at risk for school failure while the fourth participant was labeled as learning disabled. In addition to daily spelling data, data from end of the week spelling tests were gathered. Generalization of treatment gains remains a very important issue in behavioral research [24-25]. Another purpose of this research was to partially replicate prior findings that have indicated that copy, cover, and compare was a powerful enough procedure to “trap” spelling and produce generalization of student performance to end of the week spelling test performance [10-14].

METHOD PARTICIPANTS AND SETTING

The participants in this study were four eight-year-old second grade students who attended an elementary school located in an upper middle income. neighborhood. There were two male and two female participants. One student received special education services for reading, two students received primary team teaching services for reading assistance and the other student remained in the general education classroom and required no additional services. At the beginning of the study, the classroom teacher indicated that all of the participants were having difficulty with the core second grade words as well as low scores on weekly spelling tests.

The study took place on each Tuesday and Thursday at 9:00 a.m. for a total of eight weeks of school. The setting of this study was at table in the hallway outside of the participants’ classroom. This was where small group instruction often took place. The participants and the first author were present during each session. During the sessions, the first author sat across the table from the participants. All materials were presented to the participants before the start of the sessions.

RESPONSE DEFINITION AND OBSERVATION PROCEDURES

Since each of the participants was experiencing difficulty with the core second grade spelling words, the second grade core words became the target words used in this study. The behavior measured was the accuracy of spelling the target words from copy, cover, and compare practice sheets, and the accuracy of spelling of these words on the in class end of the week spelling tests. The scores for each set of items were recorded on the top of each copy, cover, and compare practice sheet and for each of the end of the week e 12-word in class spelling test. The number of corrects were recorded over the

total number of words possible.

EXPERIMENTAL DESIGN AND CONDITIONS

A multiple baseline design [26] across participants was used to evaluate the effects of a copy, cover, compare strategy. These data were collected over eight weeks of school.

Baseline. During baseline, the first author verbally presented target core words and asked the participants to write each word on a piece of paper. Data were collected from each test. The first author did not provide praise or feedback to the participants until the end of the baseline. This condition was in effect for 1 to 2 weeks (1 to 4 sessions).

Copy, cover, and compare. During the copy, cover, compare, the participant’s practiced weekly core spelling words. A new list of core words was used each week. The first author began the copy, cover, and compare intervention with the participant with the lowest spelling score. The copy, cover and compare intervention continued with the first participant and began with the participant with the second lowest spelling score. The following week this selection procedure was repeated for the last two remaining participants.

The copy, cover, and compare session began by the first author presenting the list of words. The participants were required to write these words on a piece of paper. The researcher collected the papers and gave the participants with the copy, cover, compare practice sheets. The participants read through the list of core words and were required to copy the list of words into the second column. The participant then checked his/her words for accuracy and copied these words a second time in the third column. Once each participant finished copying the words into the first two columns, the first three columns were covered with a piece of colored construction paper. Next, the first author presented the words orally while the participants wrote the words in the fourth column of the practice sheet. Once the entire list of core words was presented, the participants uncovered the columns and checked their spelling for accuracy. If an error was made, a check mark was placed next to the incorrect word in the fifth column. The participants then spelled in the incorrect work correctly in the sixth column. Praise and corrective feedback were used contingent upon student responding and participation.

RELIABILITY OF MEASUREMENT AND FIDELITY OF IMPLEMENTATION OF THE INDEPENDENT VARIABLE

Interobserver reliability or agreement was taken once per week. The researcher and the second observer independently recorded responses as correct and incorrect after the sessions were complete. An agreement occurred if the core word was spelled correctly. A disagreement occurred if the core word was spelled incorrectly. The percent of interobserver

agreement was calculated by dividing the number of agreements by the number of agreement + disagreements and multiplying this total by 100. The percent of interobserver agreement for correct and incorrect responses was 100%. Reliability as the implementation of the various experimental conditions was also gathered. These data were gathered from a required university research verifications form [27]. Reliability was 100% for the fidelity of the independent variable.

Results Inferential Statistical Comparisons

A Wilcoxon Signed Ranks Test [29] was carried out between the baseline and the copy, cover, and compare for teach participant. There was a significant difference between baseline and copy, cover, and compare for each of the participant's corrects ($Z = 2.032$; $p = .016$), and errors ($Z = 2.210$ $p = .0422$; $p = .04$).

Descriptive Statistical Outcomes for Each Participant

The number of correct and incorrect responses during baseline and during the cover, copy, and compare spelling practice procedure were as follows. The copy, cover and compare improved the spelling performance of each of the participants on then daily tests and for their end of the week inclass tests.

Participant 1. During baseline for the first participant, the number of correctly spelled words was 1.0 with 9.0 errors. During copy, cover, and compare the mean number of correct responses for spelling words increased to 5.7 (range: 1 to 11). Errors decreased to 4.95. The mean number of correct responses from the in class weekly spelling tests out of a possible 12 words was 7.0 (range: 2 to 10).

Participant 2. During baseline for the second participant, the number of correctly spelled words was 6.5 (range 5 to 8). The average was 1.3 for errors. During cover, copy, compare the mean number of correct responses for spelling words 9.5 (range 5 to 12). Errors declined to 1.33. The mean number of correct responses on the 12 word in-class weekly spelling tests was 10 (range: 8 to 12).

Participant 3. During baseline for the third participant, the number of correctly spelled words was 3.25 (range: 2 to 4). During cover, copy, compare, the mean number of correct responses was 7.2 (range: 3 to 12). Errors declined to 3.9. The mean number of correct responses from the in-class weekly 12 word spelling tests was 7.0 (range: 4 to 12).

Participant 4. During baseline for the fourth participant, the number of correctly spelled words was 3.25 (range: 2 to 5). During cover, copy, compare procedure the mean number of correct responses for spelling words was 9 (range: 3 to 12). Errors decreased to a mean of 1.25 words. The mean number of correct responses from the 12-word in class weekly spelling tests was 10 (range: 5 to 12).

Discussion

The results of this study suggest that the cover, copy, compare spelling practice strategy can be a useful procedure to teach core spelling words. These data also revealed that the participants made considerable improvement in their weekly spelling tests taken in general education classroom.

Generalization [24-25] to the regular list of words was assessed each week. While implementing the copy, cover compare strategy the first author gave a pretest followed by the cover, copy, compare procedure two days a week. These data were collected from the in class Friday spelling test. It was found that all participants' spelling test scores improved. Three of the four participants received 100% on their in-class spelling tests for weeks 4 and week 5. This was the first time all year that this had been observed.

The present outcomes replicate the work in spelling at the elementary school level [14-16], as well as much of our previous research both here and in Canada with students with disabilities [10-13]. In addition, it provides a replication with an earlier study with students without disabilities attending a local parochial school [22]. In addition, generalization to end of the week exams was found to inclass end of the week spelling. [28]

The cover, copy, compare spelling practice strategy should be very practical to use in the school setting. The teacher could create the practice sheets and administer to the entire class one or more times per week. This procedure can also be time effective. The procedure can be administered within minutes of each school day. The cover, copy, compare spelling practice procedure was inexpensive. The practice sheets can be created using a computer and copy machine or the students could use regular school paper and write each heading with a pen or pencil. Also, the cover, copy, and compare procedures generalized to the words employed on the end of the week inclass spelling tests. This further adds to the practicality of such procedures [28]

While working with our participants, we found that it was helpful to assist and require them check their own spelling. Looking for spelling mistakes is a skill that has to be taught and practiced [2-5]. At the beginning of the study, the first author told the participants their specific mistakes. By the end of the study she would indicate that there was a mistake in a certain word. Thereby, requiring the participants to determine what the mistake was in that particular word. We also felt that it was important to encourage and reward the participants for honesty in finding and correcting their errors. Other research has noted the importance of this in the development of accuracy of self-monitoring or scoring [30] as well as improved scores in spelling with elementary students [31, 32].

There were limitations in the present research. The use of the multiple baseline design [26] allowed for a rigorous comparison between copy, cover, and compare and baseline phase. Employing an alternating treatments design [26] with copy, cover, and compare phases where different word lists would be used with different treatment, would make a

stronger case regarding the efficacy of copy, cover, and compare. If such a design was employed [10], copy, cover, and compare and computer aided spelling instruction could be examined across a wide range of spelling lessons. Future research could examine maintenance and generalization for longer periods of time. It would be interesting to see if the procedures maintained after we finished formal data collection. The first author encouraged all of the participants to continue practicing their spelling words. Also, the classroom teacher asked the first author for a written sample of cover, copy, compare step-by-step procedure because she planned to use the strategy in her classroom the following school year.

ACKNOWLEDGEMENTS

Preparation of this manuscript by the author was in partial fulfillment of the requirements for a Master of Education in Special Education from Gonzaga University, Spokane, WA. The first author would also like to thank Mrs. Janette Mitchell of Hutton Elementary School for welcoming me into her class. Requests for reprints should be addressed to the authors, Department of Special Education, Gonzaga University, Spokane, WA 99258-0025.

REFERENCES

- [1] Fulk FM, Stormont-Spurgin M. Spelling interventions for students with disabilities: a review. *J Spec Ed* 1995; 28: 488-513.
- [2] Graham S. Effective spelling instruction. *Ele Sch J*, 1993; 83: 560-7.
- [3] Graham S. Handwriting and spelling instruction for students with learning disabilities: a review. *Learn Dis Quart* 1999; 22(2): 78-98.
- [4] Graham, S, MacArthur CA, Fitzgerald, J. Eds Best practices in writing instruction: solving problems in the teaching of literacy. New York: Guilford Publications 2007.
- [5] Hansen CL. Writing skills. In Haring, N, Lovitt, TC, Eaton M, Hansen C Eds. *The fourth r: research in the classroom*, Columbus, OH: Merrill, 1978; pp. 93-126.
- [6] McLaughlin TF, Weber KP, Barretto, A. (2004). Spelling: academic interventions. In Watson TS, Skinner CH. Eds *Encyclopedia of school psychology*, New York: Kluwer Academic/Plenum Publishers. 2004; pp. 317-20.
- [7] Swanson HL, Hoskyn M, Lee C. Interventions for students with learning disabilities: a meta analysis. New York: Guilford 1999.
- [8] Wong B., Harris, K R. Graham S, & Butler, D. Cognitive strategy instruction research in learning disabilities. In Swanson HL, Harris KR, Graham S Eds. *Handbook of learning disabilities*, New York: Guilford Press 2003; pp. 323-44
- [9] Conley C, Derby KM, Roberts-Gwinn MR, Weber KP, McLaughlin TF. An analysis of initial acquisition and maintenance of sight words following picture matching and copy, cover, and compare teaching methods. *J App Behav Anal* 2004; 37: 339-49.
- [10] McAuley SM, McLaughlin TF. Comparison of add-a-word and compu spell programs with low-achieving students. *J Edu Res*, 1992; 85: 362-69.
- [11] Hubbert ER, Weber KP, McLaughlin TF. A comparison of copy, cover, and compare and a traditional spelling intervention for an adolescent with a conduct disorder. *Child Fam Beh Ther* 2000; 22: 55-67.
- [12] McLaughlin TF, Reiter SM, Mabee WS, Byram B. An analysis and replication of the add-a-word spelling program with mildly handicapped middle school students. *J Behav Edu* 1, 413-26.
- [13] Murphy JF, Hern, CL, Williams RL, & McLaughlin TF. The effects of the copy, cover, and compare approach in increasing spelling accuracy with learning disabled students. *Cont Edu Psych* 1990; 15: 378-86.
- [14] Pratt-Struthers JP, Bartalamay H, Williams RL, McLaughlin TF. Effects of the add-a-word spelling accuracy during creative writing: A replication across two classrooms. *B. C. J Spec Ed* 1989; 13: 151-8.
- [15] Pratt-Struthers JP, Bartalamay H, Bell S, McLaughlin TF. An analysis of the add-a-word spelling program and public posting across three categories of children with special needs. *Read Improv* 1994; 31: 28-36.
- [16] Pratt-Struthers J, Struthers TB, Williams RL. The effects of the add-a-word spelling program on spelling accuracy during creative writing. *Edu Treat of Child* 1983; 6: 277-83.
- [17] Bolich B, Kavon N, McLaughlin TF, Williams RL, Urlacher S. Effects of a copy, cover, compare procedure and a token economy on the retention of basic multiplication facts by two middle school students with ADD/ADHD. *B C J of Spec Edu* 1995; 19: 1-10.
- [18] Skinner CH, Bamberg HW, Smith ES, Powell SS. Cognitive, cover, copy, and compare: Subvocal responding to increase rates of accuracy division responding. *Rem & Spec. Ed.* 1989; 12; 125-136.
- [19] Skinner CH, Beatty KL, Turco TL, Rasavage C. Cover, copy and compare: a method for increasing multiplication performance. *School Psychology Review* 1989; 18; 412-20.
- [20] Kearney CA, Drabman RS. The write-say method of improving spelling accuracy in children with learning disabilities. *J Learn Dis* 1992; 26: 52-6.
- [21] McLaughlin TF, Skinner CH. Improving academic performance through self-management: cover, copy, and compare. *Interv Sch Clin* 1996; 32: 113-118.
- [22] Skinner CH, McLaughlin TF, Logan P. Copy, cover, and compare: a self-managed academic intervention across students, skills, and settings. *J Behav Educ* 1997; 7: 295-306.
- [23] Schermerhorn PK, McLaughlin TF. Effects of the add-a-word spelling program on test accuracy, grades, and retention of spelling words with fifth and sixth grade

regular education students. *Child & Family Behavior Therapy* 1997; 19: 23-35.

- [24] Stokes TF, Baer DM. An implicit technology of generalization. *J App Behav Anal* 1977; 10: 349-67.
- [25] Stokes TF, Osnes PG. An operant pursuit of generalization. *Behav Ther*, 1989; 20: 337-55.
- [26] Kazdin AE. Single case experimental designs: methods for clinical and applied settings (2nd. ed.). New York: Oxford University Press 2010
- [27] McLaughlin TF, Williams BF, Williams RL, Peck SM, Derby KM, Bjordahl JM, Weber KP. Behavioral training for teachers in special education: the Gonzaga University program. *Behav Inter* 1999; 14: 83-134.
- [28] Joseph LM, Konrad,M, Cates G, Vajcner T, Eveligh E, Fishley KM. A meta-analytic review of the cover-copy-compare and variations of this self-management procedure. *Psych in the Sch* 2012,49: 122-136.
- [29] Siegel S. Non parametric statistics for the behavioral sciences New York: McGraw-Hill.
- [30] McLaughlin TF, Malaby JE. Modification of performance standards in elementary special education students. *Edu Treat Child* 1979; 2: 31-41.
- [31] Okyere BA, Heron TE, Goddard Y. Effects of self-correction on the acquisition, maintenance, and generalization of the written spelling of elementary school children. *J of Behav Edu* 1997; 7: 51-69
- [32] McGuffin ME, Martz SA, Heron, TE. The effects of self-correction versus traditional spelling on the spelling performance and maintenance of third grade students. *J Behav Edu* 1997; 7: 463-76.



K. Mark Derby, Department of Special Education Gonzaga University Spokane, WA, USA.



Kimberly P. Weber, Department of Special Education Gonzaga University, Spokane, WA, USA.



Anjali Barretto Department of Special Education Gonzaga University Spokane, WA, USA.

Author Introduction



T. F. McLaughlin, Department of Special Education Gonzaga University, Spokane, WA, USA.